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REPORT

ON THE

MORTALITY AND VITAL STATISTICS

OF THE

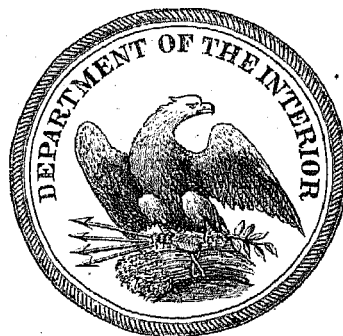
UNITED STATES

AS RETURNED AT THE TENTH CENSUS (JUNE 1, 1880),

BY

JOHN S. BILLINGS,
SURGEON U. S. ARMY.

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PART II.

MORTALITY AND VITAL STATISTICS.

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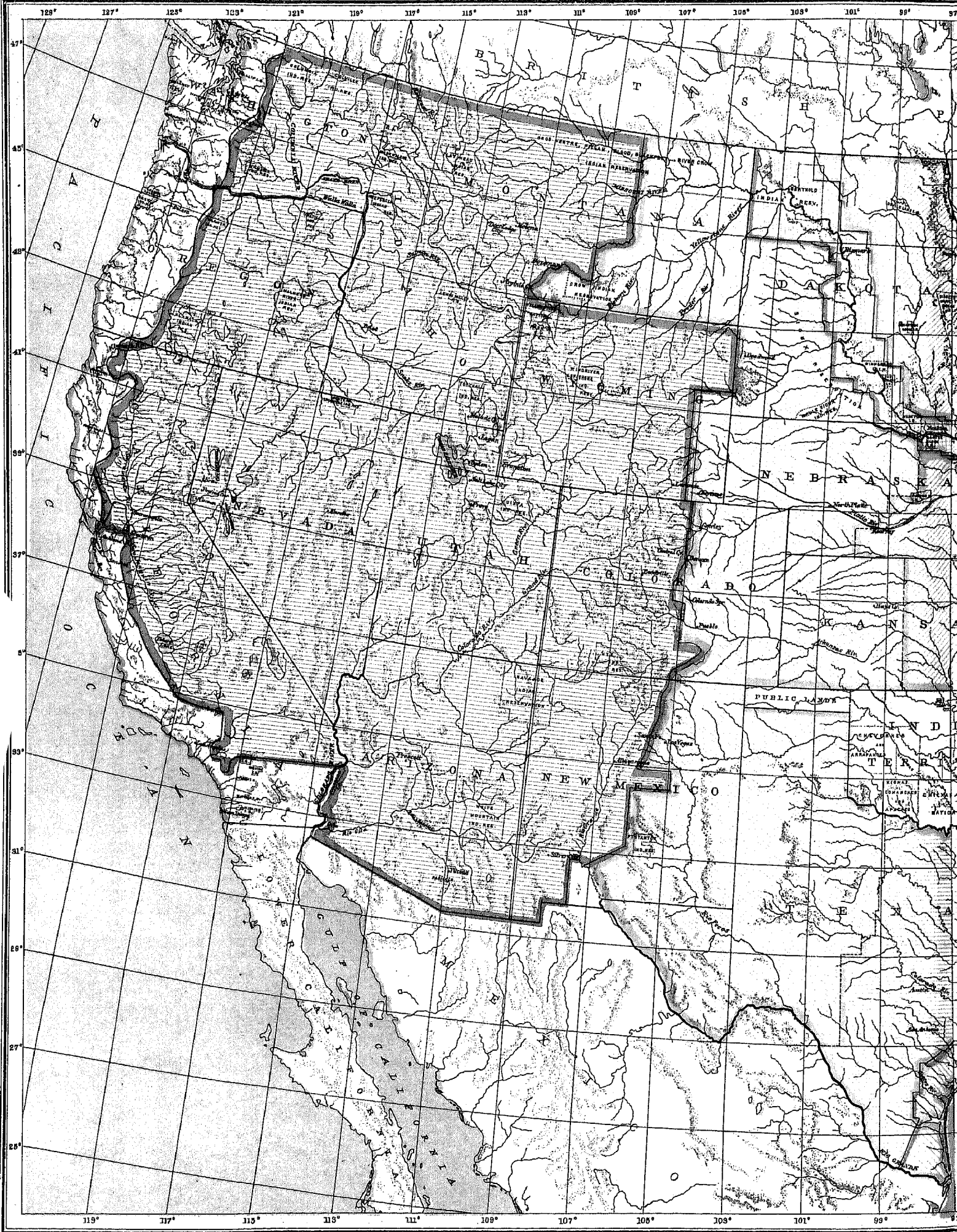
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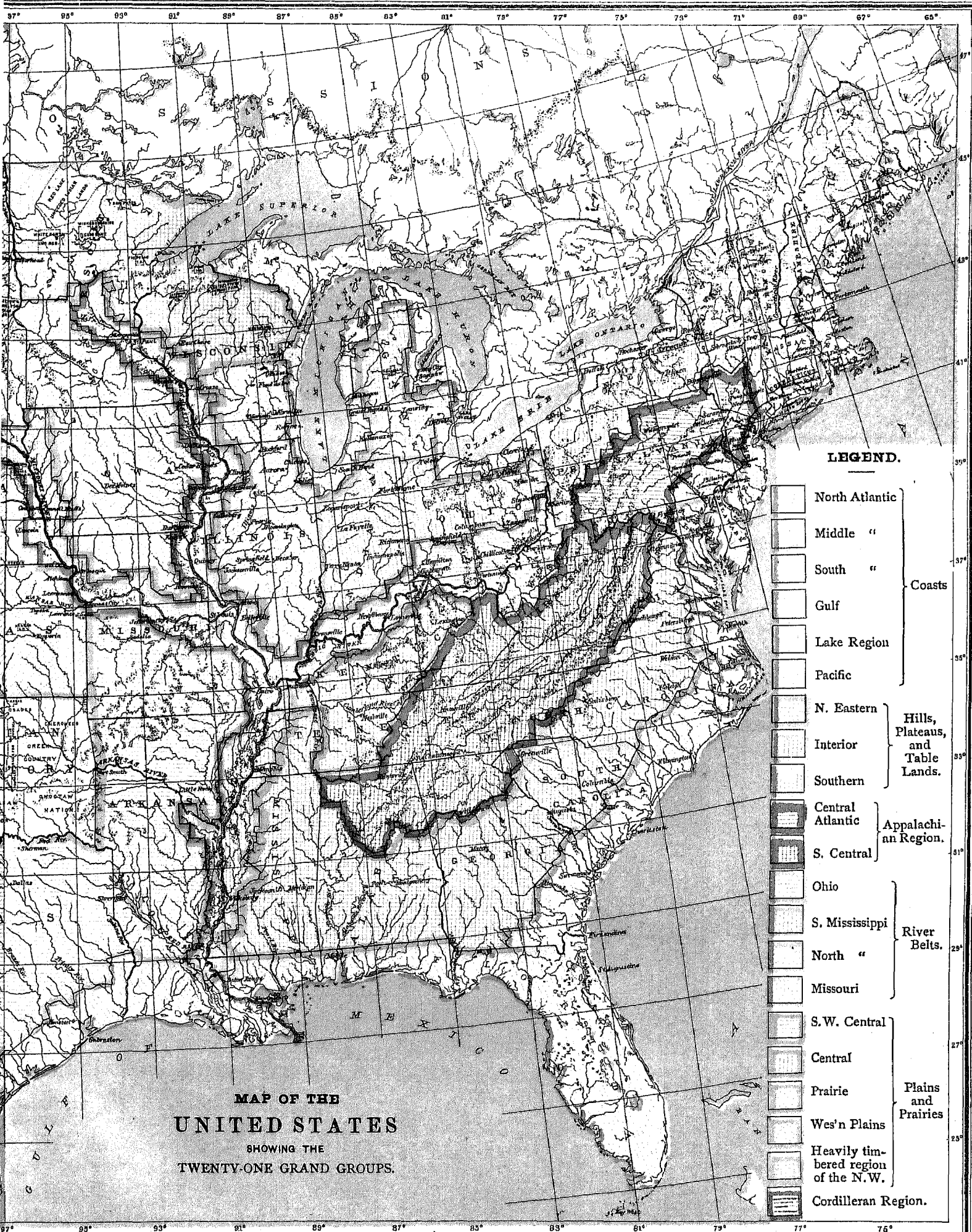
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SECTION VII.—LOCALITY IN RELATION TO DEATHS.

In order to study the influence upon the health of the inhabitants exerted by peculiarities of topography, drainage, climate, etc., the country has been divided into regions, the physical characteristics of which are more or less distinct. This division was made by Mr. Gannett, the geographer of the Census Office, and in the following account of these grand groups his descriptions of each of them are included, together with notes on peculiarities of climate, density of population, etc., and references to some of the causes of death which are either unusually frequent, or the reverse, for each locality.

The division of the country into grand groups is shown in Map No. 1. Each grand group is made up of a number of state groups, as explained on pages xiv, xv, and xvi of the introductory remarks to Part I, and the list of the counties composing each state group, arranged by states in alphabetical order, is given on pages li to lxiii of the same volume.

The first four of these regions, which comprise the whole Atlantic and Gulf coasts, possess primarily a sea climate. In this region, to a greater or less extent, the extremes of heat and cold are lessened and mitigated by the presence of that great balance-wheel of temperature, the ocean. The atmosphere is moister and, as a rule, the rainfall is greater than that of the country farther inland. This region, however, varies in its different parts very greatly in respect to temperature and surface, in such a manner as to produce very decided differences in its relations to certain causes of disease.

GRAND GROUP 1.—NORTH ATLANTIC COAST REGION.

This comprises a strip of land from 50 to 75 miles wide along the coast of Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut. The surface is mainly undulating and hilly, becoming less varied toward the south. The coast is bold and rocky in Maine, but mostly sandy and low in Massachusetts, Rhode Island, and Connecticut. There is comparatively little swamp or undrained land. The mean annual temperature is from 40° to 50° F. The mean annual rainfall is from 40 to 50 inches. The mean elevation is from 100 to 500 feet, sloping toward the shore. The density of population is over 45 persons to the square mile, and over 90 in Massachusetts and Rhode Island. The colored population forms less than 7 per cent. of the whole. The foreign population is from 20 to 35 per cent. of the whole, except on the coast of Maine, where it is below 5 per cent.

The principal causes of death which are reported as causing more than the average number of deaths out of the whole number reported are, for this group: Scarlet fever, cholera infantum, old age, consumption, hydrocephalus, cancer, diseases of the nervous system, especially apoplexy and paralysis, diseases of the circulatory system, especially diseases of the heart, bronchitis, Bright's disease, drowning, and suicides.

The proportion of deaths reported as due to diphtheria is a little less than for the whole of the United States. It is lower in the southern portion of Connecticut than farther north. Scarlet fever was most prevalent as an epidemic during the year in Rhode Island.

The causes of death in which the proportion is decidedly lower in this grand group than for the average of the United States are: Measles, whooping-cough, enteric fever, diarrhoea and dysentery, malarial fevers, puerperal septicæmia, scrofula and tabes, dropsy, pneumonia, abortion, child-birth, diseases of the spleen, burns and scalds.

The proportion of deaths from consumption is high on the Maine coast, diminishing somewhat as we go south. The proportion of deaths from croup is very low, except in Connecticut, where it is low. The proportion of deaths from enteric fever is low throughout the whole group. The proportion of still-births in this region is comparatively high, especially in Massachusetts and Rhode Island, being much lower in Maine and New Hampshire. A partial explanation at least of the unusual prevalence of certain causes of death in this region, as well as in Grand Group 5, is the greater proportion of persons of advanced age in the living population, and the consequent greater proportion of deaths from those diseases, such as cancer, paralysis and apoplexy, and heart disease, which increase in frequency in advanced life.

GRAND GROUP 2.—MIDDLE ATLANTIC COAST REGION.

This includes a strip of land comprising the coast counties of New York, New Jersey, Delaware, Maryland, and Virginia. The climate is somewhat milder than that of Grand Group 1. The surface is low and sandy, and along the New Jersey coast we find characteristic sandy reefs, shoreward from which are lagoons, succeeded by extensive areas of swamp. Farther inland the country is low, nowhere rising more than 100 feet above the level of the sea. The mean annual temperature is from 45° to 50° F. in the northern portion, and 55° to 60° in the southern portion. The mean annual rainfall is from 45 to 55 inches. The average density of population is over 45 to the square mile. In New York and northern New Jersey it is over 90 to the square mile. In the northern part the colored population is below 7 per cent. of the whole, while in the southern part it forms from 35 to 60 per cent. of the population. The foreign population is below 5 per cent., except in New York and northern New Jersey, where it is from 20 to 34 per cent.

The following are the causes to which are attributed a decidedly greater proportion of deaths out of all those reported than is the case for the average of the United States: Diarrhœa, cholera infantum, inanition, premature birth, still-birth, debility, consumption, hydrocephalus, apoplexy, convulsions, diseases of the heart, bronchitis, dentition, Bright's disease, and peritonitis.

The proportion of deaths from the following-named causes is below the average: Measles, diphtheria, whooping-cough, enteric fever, malarial fever, erysipelas, dropsy, diseases of the brain, croup, pneumonia, abortion and child-birth, and accidents and injuries.

Diphtheria is low throughout the group, especially so in the southern portion. The proportion of deaths from scarlet fever is very low in Virginia, and low in New York and Delaware. The proportion of deaths from malarial fever is low in the northern parts. The proportion from diarrhœal diseases is very high in the southern half of this group. The proportion of deaths from consumption is comparatively high in Delaware, lower in New Jersey, New York, and Maryland, and lowest on the Virginia coast. The proportion of deaths from typhoid fever throughout the group is comparatively low.

The proportion of deaths from different causes in this grand group is influenced to a great extent by the presence in it of the large cities of Brooklyn, New York, Baltimore, and Washington.

GRAND GROUP 3.—SOUTH ATLANTIC COAST REGION.

This includes the coast counties of North Carolina, South Carolina, and Georgia, with extensive reefs inclosing large bays and sounds. A large proportion of the area is low and swampy. It includes that portion of the states above mentioned which lies below what is called the "fall line", that is, the line which forms the boundary of the metamorphic region. The mean annual temperature is from 60° to 65° F. The mean annual rainfall is from 50 to 60 inches. The density of population on the coast of North Carolina and the northern portion of South Carolina is from 6 to 18 to the square mile. For the rest of the group it varies from 18 to 45 per square mile. The average elevation above the sea is less than 100 feet. The proportion of foreign population is less than 5 per cent. of the total population. The colored population is over 50 per cent.

The following causes of death are given as causing a greater proportion of the whole number of deaths reported than the average for the United States, namely: Measles, whooping-cough, diarrhœa, worms (in the rural districts), dropsy, tetanus, trismus nascentium, dentition, urinary calculus, child-birth, burns and scalds, exposure and neglect, and gunshot wounds.

The following are the causes from which the proportion of deaths is reported as being less than the average, namely: Scarlet fever, cholera infantum, erysipelas, puerperal septicæmia, old age, consumption, hydrocephalus, cancer, diseases of the nervous system, diseases of the circulatory system, croup, bronchitis, pneumonia, Bright's disease and other diseases of the kidneys, and diseases of the bones and joints. The proportion of still-births is in excess in this region, and the number of deaths from abortion is below the average. Diphtheria was somewhat more prevalent in South Carolina and Georgia than in North Carolina. The proportion of deaths from malarial fever is especially high in the coast region of North Carolina. The mortality from pneumonia is low throughout this region. The proportion of deaths from consumption is low on the Carolina coast, and slightly higher on the Georgia coast. The proportion of deaths from heart disease and dropsy is very high in the Carolinas, and somewhat less, but still high, in Georgia. The proportion of deaths from enteric fever increases from south to north, being low in Georgia and somewhat higher in the Carolinas. The proportion of deaths from child-birth is lowest in North Carolina and increases as we go south. The proportion of still-born is very high in South Carolina and Georgia. In this region the large proportion which the colored element forms of the population accounts for many of the peculiarities in the proportions of deaths due to various causes.

GRAND GROUP 4.—GULF COAST REGION.

This region includes the entire state of Florida and the coast counties of Alabama, Mississippi, Louisiana, and Texas. In Florida and Louisiana a large portion is uninhabited swamp land. The mean annual temperature is from 70° to 75° F.; the mean annual rainfall is over 55 inches. The density of the population is nowhere above 45 to the square mile, and over a large portion of this region it is below 6 to the square mile. The elevation above the sea is less than 100 feet, with the exception of a small part of interior northern Florida, where it is from 100 to 500 feet. The colored population of this group forms from 35 to 60 per cent. of the whole; the foreign population is below 5 per cent., except on the Texas coast, where it rises to 30 per cent. and over.

The causes of death in this region to which are attributed more than the average proportion of deaths are chiefly: Hooping-cough, diarrhœa and dysentery, malarial fever, debility, consumption, dropsy, tetanus and trismus nascentium, dentition, diseases of the liver, Bright's disease, child-birth, and gunshot wounds.

The proportion of deaths from malarial fever is high in Florida and Alabama, slightly lower in Louisiana and Texas, and is low in the small portion of Mississippi belonging to this group. The proportion of deaths from diarrhœal diseases is high in Louisiana and Texas, slightly lower in Florida and Alabama. The proportion of deaths from heart disease and dropsy is very high in Florida and Alabama, high in Mississippi, and somewhat lower in Louisiana and Texas, decreasing as it passes from east to west. The proportionate number of still-births is high in Alabama, Louisiana, and Texas, lower in Mississippi and in Florida.

The causes of death to which in this region the proportion of deaths attributed is below the average are as follows, namely: Measles, scarlet fever, diphtheria, enteric fever, cholera infantum, erysipelas, puerperal septicæmia, old age, croup, pneumonia and diseases of the respiratory system in general, and diseases of the bones and joints.

GRAND GROUP 5.—NORTHEASTERN HILLS AND PLATEAUS.

Grand Groups 5, 6, and 9 include the area of high lands stretching from northeast to southwest which has generally received the name of the Appalachian region. It comprises the broken, hilly country of Maine, the White mountains of New Hampshire, and the Green mountains of Vermont, the hills of central Massachusetts and of northern Connecticut, the Adirondacks and Catskills of New York, the multitudinous ridges and ranges of Pennsylvania, Virginia, West Virginia, the Carolinas, Tennessee, Kentucky, Georgia, and Alabama.

The northeastern Appalachian region, or Grand Group 5, includes all that portion of Maine, New Hampshire, Massachusetts, and Connecticut not comprised in the coast strip, with all of Vermont, and the northern portion, including the Adirondacks, of New York. The area is by no means all strictly mountainous country. It includes a large amount of hilly, broken country. It was originally covered with dense forests, which have in the settled portions been largely cut away. The climate is severe, being affected comparatively little by the sea, and the mean annual temperature over most of this area is less than 45° F. In some parts, although not the most thickly settled ones, it falls below 40° F. The annual rainfall is from 35 to 45 inches. The mean density of population is below 45 per square mile. The elevation is mostly above 500 feet, and in considerable parts rises to mountains from 3,000 to 5,000 or even 6,000 feet in height. The colored population is below 7 per cent. of the whole, and the foreign population below 10 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported, are as follows: Diphtheria, old age, consumption, hydrocephalus, cancer, tumors, glycosuria, apoplexy and paralysis, diseases of the heart, and Bright's disease and diseases of the kidney and bladder.

The proportion of deaths from diphtheria is very high in the northern and western portion, Maine and New York, and is lower in Vermont, Connecticut, and Massachusetts. The rate for consumption is very high in Maine, and is also high in Vermont, Massachusetts, and Connecticut; it is somewhat lower in New Hampshire and New York. The proportion of deaths from heart disease and dropsy is very high throughout the whole region, but is somewhat less in Massachusetts. The proportion of still-births is very high in Massachusetts, and is also high in Vermont and Connecticut. The proportion of deaths reported as due to old age is very high throughout this group, and the remark made, in speaking of Group 1, in regard to the influence exercised by the large proportion of persons of advanced age in the living population, applies to this group with even greater force.

The causes of death in Grand Group 5 to which are attributed less than an average proportion of the deaths reported are mainly as follows: Measles, scarlet fever, hooping-cough, enteric fever, diarrhœa, dysentery, cholera infantum, malarial fever, puerperal septicæmia, premature birth, scrofula and tabes, convulsions, croup, bronchitis, dentition, child-birth, abortion, and accidents and injuries.

The proportion of deaths from malarial fever is very low throughout the entire region, with the exception of Connecticut, where it is low. The proportion of deaths from pneumonia is especially low in Maine, New Hampshire, and New York. The proportion of deaths from consumption is very high in Maine, and continues comparatively high throughout the group, diminishing somewhat as it passes to the southwest. The proportion of deaths due to enteric fever is comparatively low throughout this region.

GRAND GROUP 6.—THE CENTRAL APPALACHIAN REGION.

This comprises the Catskill region of southeastern New York, the central portion of Pennsylvania, and the western part of Maryland, and chiefly consists of narrow parallel ridges, with singularly uniform crests, broken by few gaps, and rising from 1,000 to 2,000 feet above the narrow valleys separating them, which, in their turn, are from 500 to 1,000 feet above the sea. The mean annual temperature is from 40° to 45° F. The mean annual rainfall is from 35 to 40 inches. The density of the population is below 45 persons per square mile. The proportion of the colored population is below 7 per cent. The proportion of the foreign population is between 10 and 20 per cent.

The causes of death in this region, to which are attributed more than an average proportion of the deaths reported, are as follows: Scarlet fever, diphtheria, old age, cancer, diseases of the nervous system, more especially apoplexy, paralysis and convulsions, diseases of the heart, and railroad accidents.

The proportion of deaths from diphtheria is very high in Pennsylvania and comparatively low in Maryland. Scarlet fever is also very high in Pennsylvania, high in New York, and low in Maryland. The proportion of deaths from heart disease and dropsy is very high in New York, and somewhat lower in Pennsylvania and Maryland. The proportion of still-births reported is very high in Maryland, moderately high in Pennsylvania, and low in New York. The proportion of deaths from old age is very high in New York, high in Maryland, and slightly lower in Pennsylvania.

The causes of death in this region to which are attributed less than the average proportion of the deaths reported are as follows: Measles, hooping-cough, enteric fever, diarrhoea, dysentery, malarial fever, erysipelas, puerperal septicæmia, premature birth, still-birth, scrofula and tabes, dentition, and child-birth and abortion.

The proportion of deaths from malarial fever and from child-birth is very low through this region. Pneumonia is also comparatively low throughout. The proportion of deaths from enteric fever is low in New York and Pennsylvania, and slightly higher in Maryland.

GRAND GROUP 7.—REGION OF THE GREAT NORTHERN LAKES.

This comprises those parts of New York, Ohio, Indiana, Illinois, Michigan, and Wisconsin which border on the great lakes, and it partakes to a certain extent of the characteristics of the Atlantic coast region. These large bodies of fresh water undoubtedly exert a very considerable influence upon the climate in moderating its extremes. The mean annual temperature in the southern part of this region is from 45° to 50° F., and in the northern portion from 40° to 45° F. The mean annual rainfall is from 30 to 40 inches, except in northern Michigan, where it is only from 20 to 25 inches. The elevation is nowhere above 500 feet. The colored population is below 7 per cent. and the foreign population is over 30 per cent. of the whole.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Measles, scarlet fever, diphtheria, still-births, old age, cancer, convulsions, diseases of the heart, croup, peritonitis, and railroad accidents.

The proportion of deaths from diphtheria is very high on the western lakes, Michigan and Huron, somewhat lower in Ohio and New York bordering on lakes Erie and Ontario. The proportion of deaths from scarlet fever is very high in that part of Ohio bordering on lake Erie. The proportion of deaths from diarrhoeal diseases is very high in Chicago, and is also high on the lake shores of Ohio, Indiana, and Wisconsin; it is somewhat lower in Michigan and New York. The proportion of deaths from heart disease and dropsy is high in New York along lake Ontario, is somewhat lower in Ohio, and is still lower in Michigan, Indiana, Illinois, and Wisconsin. The proportion of still-births is very high through the entire belt, with the exception of a small portion of Indiana bordering on lake Michigan. The proportion of deaths reported as due to old age is high in New York, diminishing steadily as we pass to the west in this region.

The causes of death in this region to which are attributed less than the average proportion of the deaths reported are as follows: Hooping-cough, enteric fever, dysentery, malarial fever, scrofula and tabes, consumption, dropsy, pneumonia, and diseases of the respiratory system generally, dentition, diseases of the liver, urinary calculus, child-birth, and diseases of the bones and joints.

The proportion of deaths reported as due to pneumonia is low throughout the entire region, with the exception of the Indiana shore of lake Michigan, where it is somewhat higher. The proportion of deaths reported as due to consumption is low on the western shore of lake Michigan in Wisconsin, and increases as we pass eastward. The proportion of deaths reported as due to enteric fever is low on the lake shores of New York, Illinois, and Wisconsin, and slightly higher in Michigan and Ohio.

GRAND GROUP 8.—THE INTERIOR PLATEAU.

This comprises that portion of the plain stretching from the base of the Appalachians eastward which includes parts of Pennsylvania, Virginia, and North Carolina, and also, on the west side of the Appalachians, the plateau country of central New York and western Pennsylvania. It consists of three regions, which are not contiguous, viz:

(1) western parts of New York and Pennsylvania, (2) the southeastern corner of Pennsylvania, and (3) central portions of Virginia and North Carolina. The characteristics of the second of these regions, so far as returns of deaths are concerned, are largely due to the fact that it contains the cities of Philadelphia and Reading. These regions have little that is characteristic in climate or surface; lying, as they do, between the Appalachians and the Atlantic coast region on one hand and the lake region on the other, they partake to a certain extent of the climate of both. The surface is broken and hilly, but nowhere rises into mountains. The group is an upland country originally covered with forests, which have been in great part cut away. It contains comparatively little water-surface or swamp-land. The mean annual temperature is from 45° to 50° F. The annual rainfall is from 40 to 45 inches in that part east of the Appalachians; from 30 to 35 inches in the northern portion. The density of population varies from 45 to 90 per square mile. The proportion of the colored population is below 7 per cent. in Pennsylvania, and about 35 per cent. in Virginia and North Carolina. The foreign population is about 10 per cent. of the whole in Pennsylvania, and is below 1 per cent. in Virginia and North Carolina.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Diphtheria, debility, old age, consumption, cancer, tumor, dropsy, apoplexy, paralysis, convulsions, diseases of the heart, and Bright's disease and diseases of the kidney.

The proportion of deaths reported as due to diphtheria is highest in Pennsylvania, somewhat lower in New York and North Carolina, and comparatively low in Virginia. The proportion of deaths from diarrhœal diseases is high in North Carolina and Virginia, and also in the northern portion of this group. The proportion of deaths from consumption is high in New York, somewhat lower in Pennsylvania and Virginia, and lowest in North Carolina. The proportion of deaths from heart disease and dropsy is very high in New York, and is high in the remaining portion of this region. The proportion of still-births is very high in Virginia, North Carolina, and Pennsylvania, and considerably lower in New York. The proportion of deaths from old age is high in New York, somewhat lower in Pennsylvania and Virginia, and still less in North Carolina.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Measles, hooping-cough, dysentery, malarial fever, croup, pneumonia, and diseases of the respiratory system generally, child-birth, and abortion.

The proportion of deaths from scarlet fever is very low in Virginia and North Carolina. The proportion of deaths from malarial fever is very low in the northern part, increasing as we pass to the south. The proportion of deaths from pneumonia is low in Pennsylvania and North Carolina, and a little higher in New York and Virginia. Croup is low throughout the entire region. Enteric fever is low in Virginia, New York, and Pennsylvania, and considerably higher in North Carolina. The mortality from child-birth is very low in New York and Pennsylvania, and somewhat higher in Virginia and North Carolina.

The effect of the increase in the proportion of the colored population in the southern part of this group is shown in the increase of certain causes of death.

GRAND GROUP 9.—SOUTHERN CENTRAL APPALACHIAN REGION.

This region is a continuation of Grand Groups 5 and 6, passing to the southwest. It includes portions of Virginia, West Virginia, the Carolinas, Kentucky, Tennessee, Georgia, and Alabama. In Virginia and West Virginia the character of the country is very similar to that of Grand Group 6, but as we proceed southward there is a gradual rise in the ridges, and a tendency to break up into peaks, which in North Carolina develops to the highest degree, presenting in the western part of that state a complex of mountains, rising without much apparent system to heights of from 6,000 to 6,700 feet. In Virginia and farther southward the feature which was outlined in Pennsylvania becomes very characteristic, viz, the great valley occupied in northern Virginia by the Shenandoah, farther south by the branches of the New river and the heads of the Tennessee, and in Tennessee by the river of that name. This forms a great depression which, throughout the whole region, is traversed by numberless minor ranges and ridges, while it is limited on either side by higher ranges, represented in North Carolina by the mountains of the western part of that state, while the western boundary of the belt is the Cumberland range or plateau. In Georgia and Alabama these ranges gradually fade out and disappear. The mountains of this region rise from 1,000 to 6,700 feet above the sea, and the valleys are at elevations varying from 500 to 2,000 feet. The temperature of the habitable portions of this region varies with the altitude and the latitude, but nowhere is the mean annual temperature much higher than 55° F., and it falls below 40° in the higher country. This region is covered with heavy forests of pine and hard wood. The mean annual rainfall is from 35 to 45 inches in the northern half, and from 50 to 60 inches in the southern half. The density of population is below 45 persons to the square mile. The colored population is below 17 per cent. of the whole. The foreign population is below 1 per cent., except in a few localities, and is nowhere above 5 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows, viz: Measles, hooping-cough, enteric fever, diarrhœa, dysentery, still-births, rheumatism, scrofula and tabes, dropsy, croup, pleurisy, urinary calculus, diseases of the bones and joints, and gunshot wounds.

The proportion of deaths reported as due to diarrhoeal diseases is very high in North Carolina and Georgia, and also high in Tennessee. It is somewhat lower in West Virginia, Virginia, South Carolina, Alabama, and Kentucky. The proportion of deaths from heart disease and dropsy is very high in North Carolina, and is also high in Virginia, South Carolina, and Georgia. It is somewhat lower in West Virginia, Tennessee, and Alabama. The proportion of deaths from croup is very high in Kentucky and the Carolinas. It is also high in Georgia and Tennessee. Enteric fever is high in the southern portion in Georgia and Alabama, and is somewhat lower in the remaining portion. The proportion of still-births is high throughout, being a little lower in Alabama than in the rest of the group.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported, are as follows: Scarlet fever, diphtheria, cholera infantum, malarial fever, erysipelas, debility, old age, consumption, hydrocephalus, cancer, diseases of the nervous system, especially convulsions, diseases of the heart, pneumonia, bronchitis, Bright's disease and diseases of the kidney, and child-birth.

GRAND GROUP 10—THE OHIO RIVER BELT.

This group includes those parts of Ohio, Indiana, Kentucky, and West Virginia which border on the Ohio river. It is an area of broken country, becoming more and more diversified in the upper part of the river. For the most part the rivers flow in deep, narrow valleys, bordered by high bluffs and broken hills. The area of bottom-land is limited. The mean annual temperature is from 45° to 55° F. The annual rainfall is from 45 to 50 inches. The density of population is from 45 to 90 per square mile. The elevation is less than 500 feet from the mouth of the Ohio river to Cincinnati, and above this point it is from 500 to 1,000 feet. The colored population is below 7 per cent. north of the Ohio river, and from 17 to 35 per cent. south of that stream. The foreign population is from 5 to 20 per cent. north of the Ohio river and from 1 to 5 per cent. south of it.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Scarlet fever, enteric fever, cholera infantum, inanition, still-births, scrofula and tabes, consumption, diseases of the nervous system, and diseases of the bones and joints.

The proportion of deaths from scarlet fever is especially high in Indiana, and somewhat lower in Kentucky and West Virginia. The proportion of deaths from diarrhoeal diseases is high along the entire northern bank, in Indiana and Ohio, and somewhat lower in Kentucky and West Virginia. The proportion of deaths from consumption is comparatively high in Ohio, and somewhat lower in the rest of the group. The proportion of still-births is very high throughout the whole region.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Diphtheria, malarial fever, debility, diseases of the heart, diseases of the respiratory system, more especially croup, pneumonia and pleurisy, diseases of the digestive system, Bright's disease, child-birth, and accidents and injuries.

The proportion of deaths from diphtheria is very low in Kentucky and Indiana, and considerably higher in West Virginia. The proportion of deaths from malarial fever is very low in Ohio and West Virginia; it is low in Kentucky, and somewhat higher in the southern part of Indiana. The proportion of deaths from pneumonia is very low in the eastern part of this group, and slightly higher in Indiana and Kentucky. The proportion of deaths reported as due to croup is very low on the northern bank of the Ohio, and considerably higher on the south bank. The proportion of deaths from enteric fever is low throughout, being slightly higher in West Virginia than in the other states. The proportion of deaths reported as due to child-birth is very low throughout.

GRAND GROUP 11.—SOUTHERN INTERIOR PLATEAU.

This includes the section of the Atlantic plain which extends across South Carolina and Georgia, with the region in central Alabama and Mississippi lying between the Appalachian region and the Gulf coast belt. It is for the most part level and heavily timbered, principally with pine, a large extent of the surface being what is popularly known as "pine barrens". It has a warm climate, and during summer the temperature rises much higher than on the coast. The mean annual temperature is from 60° to 70° F. The annual rainfall is heavy—from 50 to 60 inches. The density of population is from 18 to 45 persons per square mile. The elevation is for the most part below 1,000 feet. The colored population forms about 60 per cent. of the whole. The foreign population is below 1 per cent., except in a few small localities.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Measles, hooping-cough, enteric fever and fever unspecified, diarrhoea, dysentery and enteritis, malarial fever, puerperal septicæmia, worms, scrofula and tabes, dropsy, diseases of the respiratory system, and especially croup, pneumonia and pleurisy, urinary calculus, dentition, child-birth, accidents and injuries, more especially burns and scalds, exposure and neglect, and gunshot wounds.

The proportion of deaths from malarial fever is very high in Alabama, and somewhat lower in the rest of the group. The proportion of deaths from heart disease and dropsy is very high in South Carolina and Alabama, high in Georgia, and slightly lower in Mississippi.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Scarlet fever, diphtheria, cholera infantum, erysipelas, debility, old age, consumption, hydrocephalus, cancer, tumor, diseases of the nervous system, diseases of the heart, bronchitis, Bright's disease, and diseases of the kidney and of the bones and joints.

The proportion of deaths from diphtheria and scarlet fever is very low. From pneumonia it is very low in South Carolina, low in Georgia, and slightly higher in Alabama and Mississippi. From consumption the proportion is very low in Georgia and Alabama, and slightly higher in South Carolina and Mississippi. From croup, child-birth, and old age it is low throughout.

GRAND GROUP 12.—SOUTH MISSISSIPPI RIVER BELT.

Along the Mississippi and Missouri rivers lie narrow belts characterized by a considerable extent of low bottom-land with rich, deep, moist soil. All this region that borders the lower Mississippi from the neighborhood of the coast to the mouth of the Ohio is included in this group, and has very characteristic features. It includes the river counties of Kentucky, Tennessee, Missouri, Arkansas, Mississippi, and Louisiana. It is an alluvial bottom-land, lying very low with relation to the river, and subject to overflow. The drainage is poor, and there are large areas of swamp-land and stagnant water. Vegetation is very rank, being almost tropical in its luxuriance. The mean annual temperature is from 60° to 70° F. The annual rainfall is from 50 to 55 inches. The density of population is from 18 to 45 persons per square mile. The elevation is between 100 and 500 feet. The colored population is about 60 per cent. of the whole. The foreign population is from 1 to 5 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Hooping-cough, malarial fever and fever unspecified, diarrhœa, dysentery, worms, dropsy, pneumonia, dentition, child-birth and abortion, and accidents and injuries, especially gunshot wounds. The proportion of deaths reported as due to malarial fever is very high throughout this group. From diarrhœal diseases it is somewhat high throughout, and very high in Kentucky. The proportion of deaths from consumption is low in this group, with the exception of that part of Kentucky bordering on the river. From heart disease and dropsy it is high in the northern portion, near the mouth of the Ohio, somewhat lower in Tennessee and Arkansas, and again higher in the south. The proportion of deaths from child-birth is low in Tennessee, higher in Arkansas, Louisiana, and Mississippi, and quite high in Kentucky. The proportion from still-birth is very high on the eastern bank of the river, and considerably lower on the western bank.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Measles, scarlet fever, diphtheria, enteric fever, cholera infantum, premature birth, debility, old age, consumption, cancer, tumor, apoplexy and paralysis, diseases of the circulatory system, and especially diseases of the heart, croup, bronchitis, Bright's disease and diseases of the kidney, diseases of the bones and joints, and suicides.

The proportion of deaths from diphtheria and from scarlet fever is very low throughout, with the exception of the west bank of the river in Arkansas, where it is quite high from scarlet fever. From pneumonia it is low on the eastern bank of the river in Tennessee, Mississippi, and Kentucky, while on the opposite bank it is considerably higher. From consumption the proportion is very low in Arkansas, low in Louisiana, Mississippi, and Tennessee, and considerably higher near the mouth of the Ohio river in Kentucky. The proportion of deaths from croup is very low throughout the entire belt except in the Kentucky portion. The same is true for enteric fever.

GRAND GROUP 13.—NORTH MISSISSIPPI RIVER BELT.

This extends from the mouth of the Ohio to the head of the Mississippi river, including portions of Missouri, Iowa, and Minnesota on the western, and of Illinois and Wisconsin on the eastern bank. The mean annual temperature is from 40° to 45° F. in the northern portion, and from 50° to 55° F. in the southern portion. The annual rainfall is from 30 to 40 inches in the northern part and from 40 to 50 inches in the southern part. The density of population is from 18 to 45 persons per square mile, except in the extreme north, where it is from 6 to 18 per square mile. The elevation in the southern portion is less than 500 feet, and rises toward the north to points from 500 to 1,000 feet. The proportion of the colored population in the southern portion is from 7 to 17 per cent., decreasing toward the north, in the extreme part of which it is below 1 per cent. The foreign population varies from 10 to 35 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Enteric fever, diarrhœa and dysentery, cholera infantum, malarial fever, erysipelas, septicæmia and puerperal septicæmia, inanition, still-births, debility, convulsions, tetanus and trismus nascentium, and diseases of the respiratory system, especially pneumonia.

Diphtheria is low in the southern part of this group, gradually increasing toward the north, becoming very high in the Wisconsin counties. The proportion of still-births is decidedly higher on the western bank than it is on the eastern.

The following are the causes of death in this region to which are attributed less than an average proportion of the number of deaths: Scarlet fever, diphtheria and whooping-cough, old age, scrofula and tabes, consumption, hydrocephalus, cancer, dropsy, diseases of the heart, Bright's disease, urinary calculus and diseases of the kidney, diseases of the bones and joints, and accidents and injuries.

The proportion of deaths from malarial fever is very low in the northern part of this region. The same is true for pneumonia, both gradually increasing toward the south. The proportion of deaths from enteric fever is low in Iowa and Missouri, and slightly higher in Minnesota, Wisconsin, and Illinois. The proportion of deaths from child-birth is very low in Minnesota, Wisconsin, Iowa, and Missouri.

GRAND GROUP 14.—SOUTHWEST CENTRAL REGION.

This includes the northwestern part of Louisiana, the southern part of Missouri, all of Arkansas except such portions of these states as belong to the South Mississippi river belt, and central Texas. It is mainly upland, and, with the exception of parts of Texas, is heavily timbered. In Louisiana it is traversed by a narrow strip of bottom-land along the Red river. A considerable part of this region in Missouri and Arkansas is occupied by the Ozark hills, which rise to 1,000 feet or more above sea-level, or 400 to 500 feet above the surrounding country. The mean annual temperature is from 60° to 70° F. The annual rainfall is from 35 to 50 inches. The density of the population is from 6 to 18 persons per square mile, rising to from 18 to 45 in some small districts. The elevation is from 100 to 500 feet, with some peaks rising to 1,000 feet. The colored population forms from 17 to 60 per cent. of the whole. The foreign population is below 5 per cent., except in southern Texas, where it rises to from 20 to 30 per cent. and over.

The causes of death in this region to which more than an average proportion of the deaths reported are attributed are as follows: Small-pox, measles, whooping-cough, enteric fever, diarrhoea and dysentery, malarial fever, erysipelas, puerperal septicæmia, worms, diseases of the respiratory organs, more especially croup and pneumonia, diseases of the digestive organs, child-birth and abortion, and gunshot wounds.

The proportion of deaths from malarial fever is very high in Arkansas, and also large throughout the group. The proportion from diarrhoeal diseases is very high in Texas and Missouri, and somewhat lower in Louisiana. The proportion of deaths from pneumonia is very high in the northern part of Louisiana, and lower in the rest of the group. The proportion of deaths from enteric fever is high in Missouri, somewhat lower in Texas, and low in Arkansas and Louisiana. The proportion of still-births is very high in Texas, high in Missouri, and somewhat lower in Arkansas and Louisiana.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Scarlet fever, diphtheria, cholera infantum, debility, old age, consumption, cancer, tumors, paralysis, convulsions, diseases of the heart, bronchitis, Bright's disease and diseases of the kidney, diseases of the bones and joints, and suicides.

The proportion of deaths from diphtheria, scarlet fever, and consumption is very low throughout this region. The proportion of deaths from heart disease and dropsy is high in Louisiana, but low elsewhere in the group. The proportion of deaths from child-birth is very low in Missouri, is low in Arkansas and Texas, and slightly higher in Louisiana. From old age the proportion is very low throughout, except in Louisiana, where it approaches the mean.

GRAND GROUP 15.—CENTRAL REGION, PLAINS AND PRAIRIES.

This includes the plateau running across the northern part of Ohio and Indiana, and the central portions of Kentucky and Tennessee, and is essentially what is left of the eastern portion of the Mississippi valley after taking from it other characteristic regions. The surface is for the most part undulating, presenting neither the dead level of the prairies on the one hand, nor the broken character marking the western foot-hills of the Appalachians on the other. The timber which originally covered it has been largely cut away. The mean annual temperature is from 50° to 60° F. The mean annual rainfall is from 40 to 45 inches. The density of the population is from 45 to 90 persons per square mile. The elevation is from 500 to 1,500 feet. The colored population is below 7 per cent. of the whole in the northern part, and from 7 to 35 per cent. in the southern. The foreign population is below 1 per cent. in the southern part, and from 5 to 10 per cent. in the northern portion.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Whooping-cough, enteric fever, scrofula and tabes, consumption, glycosuria, diseases of the nervous system, croup, pneumonia, and diseases of the bones and joints.

The proportion of deaths from diarrhoeal diseases is high in Indiana, and slightly lower in Ohio, Kentucky, and Tennessee. The proportion from consumption is high in Kentucky and Tennessee, and somewhat lower in Ohio. On the other hand, heart disease and dropsy give a high proportion of deaths in Ohio, and a lower in Kentucky and Tennessee. The proportion of still-births is very high throughout this region.

The causes of death to which are attributed in this region less than an average proportion of the number of deaths reported are as follows: Scarlet fever, diphtheria, debility, old age, cancer, tetanus and trismus nascentium, convulsions, diseases of the circulatory system, diseases of the digestive system, Bright's disease, child-birth, and accidents and injuries.

The proportion of deaths from diphtheria is very low in Kentucky, and is also low in Indiana; it is higher in Tennessee and Ohio. The proportion of deaths from scarlet fever is highest in this group in Indiana, and is very low in the southern portion. From malarial fever the proportion is low in Ohio and Indiana, and higher in Kentucky and Tennessee. The proportion of deaths from pneumonia is low in this region, being at its highest in Indiana.

GRAND GROUP 16.—THE PRAIRIE REGION.

This comprises most of the state of Illinois, the southern part of Wisconsin, nearly all of Iowa, southern Minnesota, the northern part of Missouri, the eastern half of Kansas, and a considerable portion of Nebraska, with that part of Dakota lying east of the Missouri belt. Though not entirely treeless, forests cover but a small portion of the area, and these are distributed along the water-courses on the faces of bluffs and the tops of knolls. The surface is nearly level, except where cut or scored by streams. The soil is deep, extremely fertile, and generally very retentive of moisture. Originally there were larger areas of swamp-land and standing-water than at present. The mean annual temperature is from 50° to 55° F. in the southern part, and 40° to 45° in the northern part. The mean annual rainfall is from 35 to 40 inches in the eastern part, and from 20 to 25 inches in the western part. The density of the population is from 18 to 45 persons per square mile in the southern and eastern sections; it is below 6 per square mile in the northern and western parts. The elevation is from 500 to 1,000 feet in the eastern portion, gradually rising to from 2,000 to 3,000 feet in the west. The colored population is below 1 per cent. of the whole, except in the southern portion, where it is from 1 to 7 per cent. The foreign population in the southern part is from 1 to 5 per cent.; in the northern part it is from 20 to 35 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported, are as follows: Measles, scarlet fever, diphtheria, enteric fever, cholera infantum, erysipelas, puerperal septicæmia, rheumatism, glycosuria, diseases of the respiratory system (more especially croup and pneumonia), child-birth, and diseases of the bones and joints.

The proportion of deaths from diphtheria is very high in Dakota, Minnesota, Nebraska, and Iowa; it is high in Wisconsin, and lower in Kansas, Illinois, and Missouri. From scarlet fever the proportion is high in Nebraska. From malarial fever the proportion is high in Kansas, lower in Missouri, and low in the remainder of the group. From diarrhœal diseases the proportion is very high in the southern portion of this region (Missouri and Kansas); it is also high in Illinois, Iowa, Nebraska, and Minnesota. The proportion from croup is high in Dakota and Nebraska, somewhat lower in Kansas, Iowa, and Missouri, and low in Illinois, Wisconsin, and Minnesota. The proportion of still-births is very high in Missouri, and is high throughout the group, with the exception of Wisconsin.

The causes of death in this region to which are attributed less than an average proportion of the deaths recorded are as follows: Inanition, debility, consumption, hydrocephalus, cancer, dropsy, diseases of the nervous system (more especially apoplexy, paralysis, and convulsions), diseases of the heart, bronchitis, dentition, Bright's disease, and accidents and injuries.

The proportion of deaths from pneumonia is low throughout the whole of this region, being higher in the southern than in the northern portion. The proportion from consumption is very low in Nebraska and Kansas, and low in Minnesota and Iowa, being somewhat higher in the remainder of the group. The proportion from heart disease and dropsy is low throughout this region, with the exception of Wisconsin, Illinois, and Iowa. The proportion from enteric fever is low in Wisconsin and Dakota, and somewhat higher in the rest of the group. The proportion from child-birth is low in this region, with the exception of Dakota.

GRAND GROUP 17.—THE MISSOURI RIVER BELT.

This comprises a narrow strip across Missouri, with portions of eastern Nebraska, western Iowa, and central Dakota, including in the main a broad area of bottom-land of deep rich soil, subject to overflow in the southern portion. Higher up the river, in Dakota, we enter the sub-humid section of the country, the atmosphere being dryer and the rainfall less. The mean annual temperature is from 40° to 45° F. in the northern part, and from 50° to 55° in the southern part. The mean annual rainfall is from 10 to 20 inches in the northern part, and from 30 to 40 inches in the southern part. The density of population is from 18 to 45 persons per square mile in the southern portion, and it is under 2 per square mile in the northern portion. The elevation is from 500 to 1,000 feet in the southern and central portion, and from 1,500 to 2,000 feet in Dakota. The colored population forms from 7 to 17 per cent. of the whole in the southern part, and practically sinks to nothing in the northern part. The foreign population is from 10 to 20 per cent. in the southern and central portions of this region.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Measles (more especially in Kansas City), diphtheria, enteric fever, diarrhoeal diseases, malarial fever, erysipelas, puerperal septicæmia, lead-poisoning, croup (especially in Kansas City), pneumonia, and gunshot wounds.

The proportion of deaths from diphtheria is very high in the northern and middle portions of this region. The proportion from diarrhoeal diseases is high in the southern portion of the region. From pneumonia the proportion is also high in the south, lower in the middle portion, and very low in the north. The proportion of still-births is very high in the northern portion of Dakota, and somewhat lower in the remainder of the group.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Scarlet fever (with the exception of Kansas City), whooping-cough, inanition, debility, consumption, hydrocephalus, cancer, dropsy, diseases of the nervous system, and especially apoplexy, paralysis, tetanus and trismus nascentium, convulsions, diseases of the heart, diseases of the digestive system, Bright's disease and diseases of the kidney, and accidents and injuries.

The proportion of deaths from scarlet fever is low throughout the entire group, except in the Nebraska River belt and in Kansas City, where an epidemic seems to have prevailed. The proportion from consumption is very low in the northern part, gradually increasing toward the south. From heart disease and dropsy the proportion is very low in the north and is also low in the south, and somewhat higher in the central portion. The proportion of deaths from croup is also low in the northern and southern portions, and somewhat higher in the central portion. From enteric fever the proportion of deaths is very low in Dakota, increasing as we pass to the south. The proportion of deaths from child-birth is very low throughout.

GRAND GROUP 18.—REGION OF THE WESTERN PLAINS.

This extends westward from the border of the prairie region, including parts of Texas, Kansas, Nebraska, Colorado, Wyoming, Dakota, Montana, and New Mexico. The characteristics of the prairie region are here intensified in every particular. The timber is scarce, being found only along the water-courses. The surface is a monotonous rolling expanse, covered only with sparse clumps of bunch-grass, cactus, yucca, and other plants characteristic of a dry climate. The temperature varies from 65° to 70° F. in the southern part, and from 40° to 45° in the northern portion. The mean annual rainfall is from 10 to 20 inches. (The rainfall is in general below 2.5 inches; indeed, this isohyetal line may be taken in general terms as the boundary-line between this and the prairie region, although in the north the cooler climate and smaller evaporation tend to throw the boundary westward, while the reverse condition in the south tends to throw it eastward.) The extremes of temperature in this region are very great, being exceeded only in the still more arid region farther west. The density of the population is under 2 persons per square mile. The elevation is 1,500 feet in the eastern portion, rising to 4,000, 5,000, and 6,000 feet in the west. The colored population, in some parts of Colorado and Kansas, is from 1 to 5 per cent. of the whole; in the remainder of the group it is less than 1 per cent. The foreign population is less than 1 per cent., except in some parts of Colorado, Kansas, and Nebraska, where it is from 5 to 34 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Small-pox, measles, scarlet fever, diphtheria, whooping-cough, fever unspecified, enteric fever, puerperal septicæmia, pneumonia (especially in Denver), pleurisy, and accidents and injuries, more especially exposure and neglect, gunshot wounds, and homicide.

The proportion of deaths from diphtheria is very high in Dakota, Colorado, and Kansas, and is high in Nebraska, being low in the northern and southern extremities of this region. The proportion from scarlet fever is very high in Wyoming, and high in Kansas and Nebraska, being very low in the extreme northern and southern portions of the region. The proportion of deaths from malarial fever is high in Montana, Texas, and Kansas, and very low in Nebraska, Colorado, and New Mexico. From diarrhoeal diseases the proportion is very high in Texas, and high in Kansas and Nebraska. From pneumonia the proportion is very high in Dakota, and very low in Texas, New Mexico, and Montana.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Malarial fever, still-births, debility, old age, rheumatism, scrofula and tabes, consumption, hydrocephalus, cancer, tumor, dropsy, diseases of the nervous system, more especially meningitis, apoplexy, paralysis, tetanus and trismus nascentium, and convulsions, diseases of the heart, dentition, Bright's disease and diseases of the kidney, and diseases of the bones and joints.

The proportion of deaths from consumption is very low in Texas, New Mexico, Wyoming, Kansas, and Montana; it is somewhat higher in Colorado. The proportion from heart disease and dropsy is very low throughout, being slightly higher in Texas than in the rest of this region. The proportion from enteric fever is very low throughout this region, except in Kansas and in Texas. The proportion of still-births is low throughout the region, except in Kansas and Nebraska, where it is very high. The proportion of deaths from old age is very low throughout.

GRAND GROUP 19.—HEAVILY-TIMBERED REGION OF THE NORTHWEST.

This comprises parts of Minnesota, Wisconsin, and Michigan. It is heavily timbered and well watered, containing large numbers of small lakes and considerable areas of swamp, especially in Wisconsin and Minnesota. This large water surface, together with the dense forests, tends to give to this region a moist atmosphere, although the rainfall is not great. The mean annual temperature is from 40° to 50° F., and below 40° in northern Wisconsin and Minnesota. The mean annual rainfall is from 30 to 40 inches. The density of population in Wisconsin and Michigan is from 45 to 90 persons per square mile. The elevation is from 1,000 to 1,500 feet. The colored population is below 7 per cent. of the whole. The foreign population is from 20 to 30 per cent. and over.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Scarlet fever, diphtheria, old age, rheumatism, cancer, tumor, paralysis, diseases of the heart, child-birth, diseases of the bones and joints, and accidents and injuries.

The proportion of deaths from diphtheria is very high in Michigan and Wisconsin, and somewhat lower in Minnesota. The proportion from scarlet fever is high in Wisconsin, also in Minnesota, and low in Michigan. The proportion from diarrhoeal diseases is very high in Minnesota, and also high in Wisconsin. From heart disease and dropsy the proportion is high in Michigan, and considerably lower in Wisconsin and Minnesota. The proportion of still-births is high in Michigan, lower in Wisconsin, and low in Minnesota. The proportion from old age is very high in Michigan, lower in Wisconsin, and low in Minnesota.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Measles, enteric fever, diarrhoea and dysentery, cholera infantum, malarial fever, puerperal septicæmia, still-births, debility, scrofula and tabes, hydrocephalus, dropsy, diseases of the nervous system, especially convulsions, diseases of the respiratory organs, more especially croup and pneumonia, diseases of the digestive system, dentition, and peritonitis.

The proportion of deaths from malarial fever is low in Michigan, and very low in the remainder of the group. From pneumonia it is very low throughout. From consumption the proportion is low in Wisconsin, and considerably higher in Minnesota and Michigan. From croup it is low throughout. The proportion of deaths from enteric fever is very low in Minnesota and Wisconsin, and low in Michigan. From child-birth it is very low in Michigan, and considerably higher in Wisconsin and Minnesota.

GRAND GROUP 20.—THE CORDILLERAN REGION.

This includes the region westward from the Rocky mountains to the Cascades and Sierra Nevada, consisting mainly of the high plateau crowned by a succession of mountain ranges forming systems of a greater or less degree of complexity. It comprises Arizona, Utah, Nevada, and portions of Colorado, Montana, Wyoming, New Mexico, California, Oregon, and Washington territory. The climate is arid, the rainfall is small, and the extremes of temperature are great between summer and winter, and day and night. As a general thing, the mountains only are timbered, the valleys and level country being covered with herbaceous plants characteristic of an arid climate. The slopes are everywhere amply sufficient to insure good drainage, and therefore swamps and stagnant water are rare. The mean annual temperature is from 40° to 50° F. in the northern and central portions, and from 60° to 65° in the southern portion. The mean annual rainfall is below 10 inches in the central and southwestern portions, and somewhat greater in the eastern and northern portions. The density of population is below 2 persons to the square mile. The elevation is from 4,000 to 10,000 feet and above. The proportion of the colored population is so small as not to be worth taking into account, and the same may be said in regard to the foreign population, except in a few settlements in Colorado, Utah, Montana, and Washington territory, where it forms from 5 to 34 per cent. of the whole.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Measles, diphtheria, whooping-cough, fever unspecified, erysipelas, puerperal septicæmia, alcoholism, rheumatism, dropsy, diseases of the respiratory organs, more especially pneumonia, child-birth, and accidents and injuries, more especially gunshot wounds, homicide, infanticide, and suicide.

The proportion of deaths from diphtheria is very high throughout the northern portion; it becomes lower as we proceed south. From scarlet fever the proportion is very high in Montana, Wyoming, and New Mexico, and low in the rest of this region. The proportion of still-births is very high in the northwest, in Oregon, and Washington; very low in the southern portion; and moderately high in Utah, California, and Montana.

The causes of death in this region to which are attributed less than an average proportion of the number of deaths reported are as follows: Diarrhoea and dysentery, cholera infantum, debility, old age, scrofula and tabes, consumption, hydrocephalus, cancer, tumor, diseases of the nervous system, more especially apoplexy, paralysis, tetanus and convulsions, diseases of the heart, croup, diseases of the digestive system, Bright's disease and diseases of the kidney, and diseases of the bones and joints.

The proportion of deaths from malarial fever is very low throughout the greater part of this group. The same may be said as regards consumption, heart disease and dropsy, croup, enteric fever, and old age. The proportion of deaths from heart disease and dropsy is higher in Oregon and Nevada than in the rest of the group. From enteric fever the proportion is greatest in Oregon, next in Idaho, Colorado, and Arizona. The proportion from child-birth is very high in Arizona, very low in Montana, Wyoming, and Oregon.

GRAND GROUP 21.—PACIFIC COAST REGION.

This comprises the coast portions of Washington, Oregon, and California lying between the ranges of the Cascades and Sierra Nevada and the Pacific coast. It has a well-defined wet and dry season, the former corresponding to the winter in the eastern portion of the country, and the latter to the summer. The northern part receives much more rain than the southern part. The surface consists of a complex range of mountains known as the coast range, running parallel to the coast, east of which is a great valley extending from Puget's Sound to the southern part of California. This is occupied in Oregon by the Willamette and other rivers, in California by the Sacramento and the San Joaquin. East of this valley is a great uplift, represented in Washington Territory and Oregon by the Cascade range, and in California by the Sierra Nevada. The mean annual temperature is from 55° to 65° F. in the southern portion, and from 45° to 55° in the northern portion. The mean annual rainfall is above 60 inches in the north, and below 20 inches in the south. The mean density of population is below 2 persons per square mile, except in the vicinity of San Francisco, Los Angeles, Sacramento, and Portland. The elevation varies from the coast-line to 3,000 feet. The colored population is below 7 per cent. of the whole. The foreign population in California forms 20 per cent. and over of the whole; in Washington and Oregon it is from 5 to 10 per cent.

The causes of death in this region to which are attributed more than an average proportion of the deaths reported are as follows: Puerperal septicæmia, old age, hydrocephalus, cancer, tumor, diseases of the nervous system, especially apoplexy and paralysis, diseases of the heart, diseases of the digestive organs, especially diseases of the liver, Bright's disease, and accidents and injuries, especially gunshot wounds, homicide, and suicide.

The proportion of deaths from diphtheria is very high in Washington territory, and diminishes as we go south. The proportion of deaths from consumption is high in California, and slightly lower in Oregon and Washington territory. From heart disease and dropsy the proportion is slightly above the mean throughout. The proportion of still-births is very high in California, more especially in San Francisco and Oakland, where it rises to 60 per thousand; it is also high in Oregon, and slightly lower in Washington territory.

The causes of death in this region to which are attributed less than an average proportion of the deaths reported are as follows: Measles, scarlet fever, diphtheria, whooping-cough, enteric fever, diarrhoeal diseases, malarial fever, erysipelas, old age, rheumatism, scrofula and tabes, dropsy, tetanus, trismus nascentium, croup, pneumonia, pleurisy, diseases of the kidney, and diseases of the bones and joints.

The proportion of deaths from scarlet fever is very low in California and Washington territory, and decidedly higher in Oregon. The proportion of deaths from malarial fever is very low throughout, being slightly higher in Oregon than in California and Washington territory. From pneumonia and croup the proportion is very low throughout. From enteric fever the proportion is very low in Washington territory and California, and high in Oregon. The proportion from child-birth is very low in California, low in Oregon, and higher in Washington territory, increasing as we go north.

In concluding this subject of the relation of special causes of death to topographical features of the country, the general result of the study may be summed up in saying that the conditions of climate, the amount of annual rainfall, the amount of low-lying and swamp land, age and sex, the distribution of the people, and the proportion of the colored and foreign population, appear to be the chief causes of the differences between the several grand groups, or between different portions of the same grand group. Except in so far as it influences climate or drainage, the geological formation of different regions does not appear to have a marked influence upon the proportion of deaths from various causes, with the exception of goiter, urinary calculus, lead-poisoning, and, perhaps, diseases of the digestive organs, due to inorganic impurities in the water-supply.

URBAN AND RURAL MORTALITY.

The records of deaths in this census have been so tabulated as to permit of certain comparisons between the deaths occurring in the fifty largest cities and in the rest of the country, more especially as to the proportion of deaths reported as due to different causes with distinctions of sex and age. In thirty-one of these cities the records derived from a current registration of deaths were copied, and these are used more especially to give the proportion of deaths in the different months. In this country, as elsewhere, the death rate in the cities is larger than in the rural districts, but how much larger we can not state positively from the data at our command. As compared with the rural districts, the cities have been for the last twenty years gaining most in healthiness, owing to the fact

that systematic sanitary work has been carried on in them to a much greater extent than in the smaller towns and villages. The larger mortality of cities is mainly due to an excess of deaths in the earlier years of life. The differences in the proportion of deaths from certain causes in the large cities, as compared with the rest of the country, which for the sake of brevity is designated as "Rural", although it contains a considerable number of large towns, will be considered hereafter in the discussions of the several causes of death. The following tables and diagrams give a connected view of some of the most important of these differences for certain causes and classes of causes:

TABLE 26.—SHOWING FOR RURAL AND CITIES THE NUMBER OF DEATHS FROM SPECIFIED DISEASES IN 1000 DEATHS FROM KNOWN CAUSES.

Diseases.	Rural.	Cities.	Diseases.	Rural.	Cities.
Pneumonia.....	92.9	69.0	Measles.....	12.3	7.4
Heart disease and dropsy.....	59.7	46.4	Scrofula and tabes.....	7.5	4.7
Diphtheria.....	57.1	38.6	Tetanus and trismus nascentium.....	2.7	6.1
Accidents and injuries.....	52.4	40.8	Peritonitis.....	3.6	7.9
Enteric fever.....	36.0	16.7	Cancer.....	17.9	18.7
Malarial fever.....	32.8	11.8	Scarlet fever.....	21.6	26.7
Croup.....	26.6	10.1	Diseases of the digestive system.....	45.4	46.7
Child-birth.....	19.5	4.7	Still-born.....	28.6	54.9
Hooping-cough.....	16.9	9.7	Diseases of the nervous system.....	110.8	124.1
Puerperal septicæmia.....	12.8	9.7	Consumption.....	123.6	137.8

FIG. 19.—DIAGRAM SHOWING FOR RURAL AND CITIES THE PROPORTION OF DEATHS FROM SPECIFIED DISEASES IN 1000 DEATHS FROM KNOWN CAUSES.

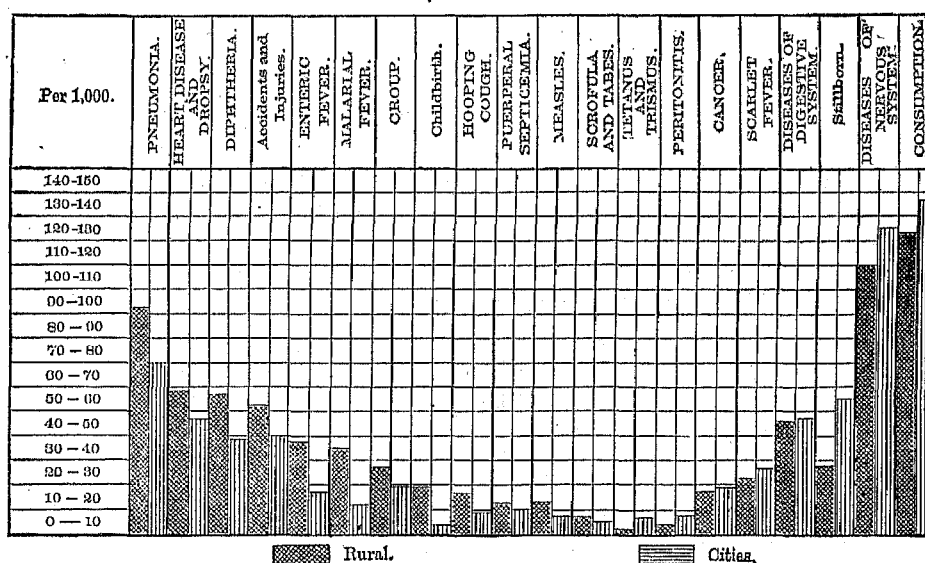
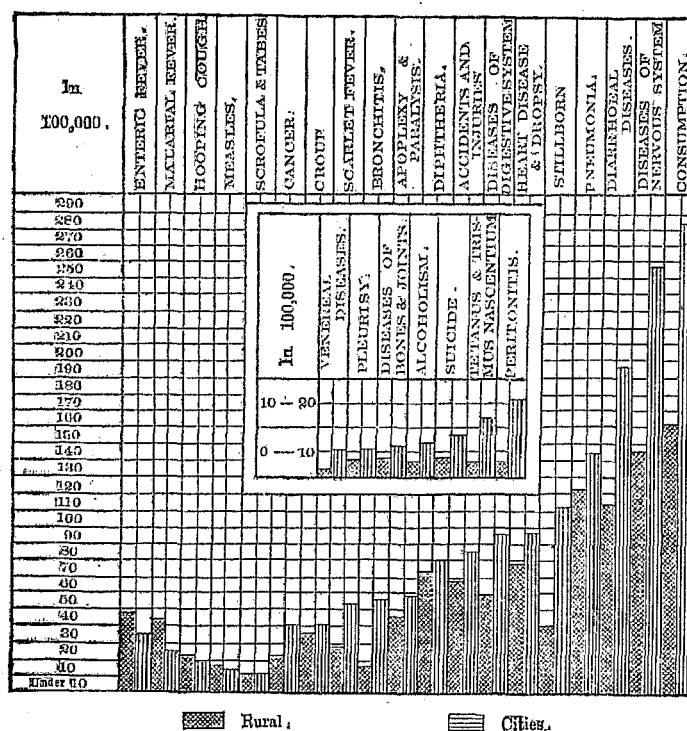


TABLE 27.—SHOWING FOR RURAL AND CITIES THE NUMBER OF DEATHS FROM SPECIFIED DISEASES IN 100,000 OF POPULATION.

Diseases.	Rural.	Cities.	Diseases.	Rural.	Cities.
Enteric fever.....	47.5	34.6	Heart disease and dropsy.....	78.7	96.3
Malarial fever.....	43.2	24.6	Still-born.....	37.7	113.8
Hooping-cough.....	22.4	20.1	Pneumonia.....	122.5	143.0
Measles.....	16.2	15.4	Diarrhoeal diseases.....	114.3	109.3
Scrofula and tabes.....	9.9	9.9	Diseases of the nervous system.....	146.0	257.2
Cancer.....	23.4	40.1	Consumption.....	162.0	285.5
Croup.....	35.1	40.8	Venereal diseases.....	1.8	5.6
Scarlet fever.....	28.4	55.4	Pleurisy.....	3.5	5.8
Bronchitis.....	15.5	56.1	Diseases of the bones and joints.....	3.8	6.1
Apoplexy and paralysis.....	44.6	59.6	Alcoholism.....	2.3	7.9
Diphtheria.....	75.3	80.0	Suicide.....	4.3	8.6
Accidents and injuries.....	66.1	81.5	Tetanus and trismus nascentium.....	3.6	12.7
Diseases of the digestive system.....	59.9	95.6	Peritonitis.....	4.7	16.5

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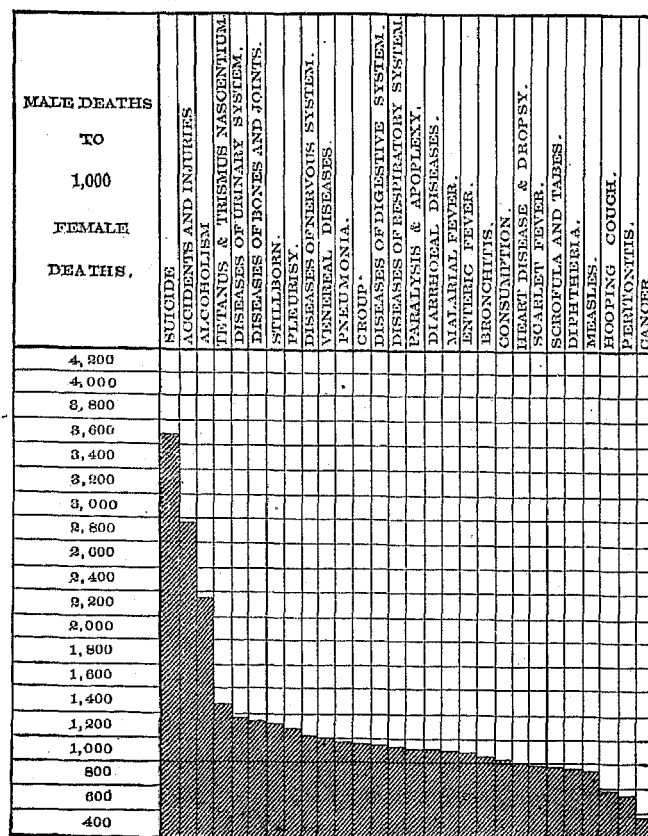
FIG. 20.—DIAGRAM SHOWING FOR RURAL AND CITIES THE NUMBER OF DEATHS FROM CERTAIN SPECIFIED DISEASES IN 100,000 OF POPULATION.



To estimate the true influence of cities upon the diseases of adult life, it is necessary to consider especially the proportions of deaths reported as due to such diseases for the age-periods above five years, thus to a certain extent avoiding the fallacies due to the great excess of deaths in infancy in the cities, which fallacies arise from comparisons of gross mortality rates.

The following diagrams show for specified diseases the number of male deaths to each 1000 female deaths in 50 cities and in the United States. The tables from which these diagrams were prepared will be found on pages 43 to 556 of Vol. XI:

FIG. 21.—DIAGRAM SHOWING FOR 50 CITIES THE PROPORTION OF MALE DEATHS TO 1000 FEMALE DEATHS FOR CERTAIN SPECIFIED CAUSES.



LOCALITY IN RELATION TO DEATHS.

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FIG. 22.—DIAGRAM SHOWING FOR SPECIFIED DISEASES THE PROPORTION OF MALE DEATHS TO 1000 FEMALE DEATHS IN THE UNITED STATES.

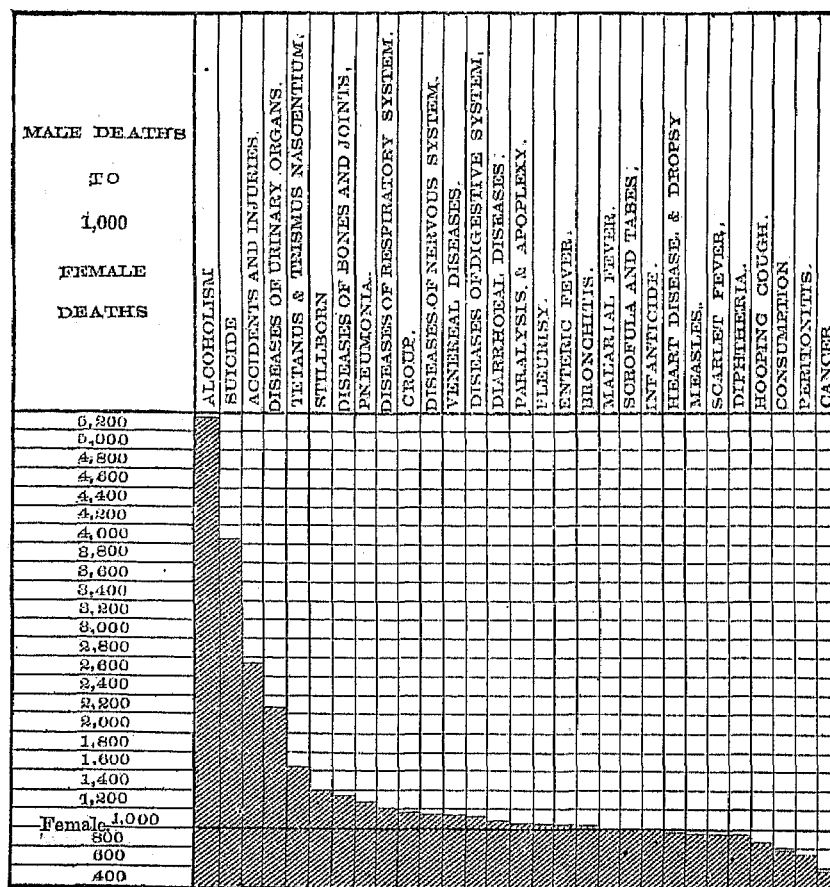


TABLE 28.—SHOWING FOR MALES AND FOR FEMALES IN 50 CITIES, AND IN THE UNITED STATES EXCLUSIVE OF 50 CITIES, THE PROPORTION OF DEATHS FROM SPECIFIED CAUSES AT CERTAIN AGES IN 1,000,000 DEATHS FROM KNOWN CAUSES OF CORRESPONDING AGES.

Diseases.	MALES.								FEMALES.							
	50 cities.				United States, exclusive of 50 cities.				50 cities.				United States, exclusive of 50 cities.			
	Per 1,000,000 deaths from known causes of corresponding ages.				Per 1,000,000 deaths from known causes of corresponding ages.				Per 1,000,000 deaths from known causes.				Per 1,000,000 deaths from known causes.			
	Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.	Under 5.	5-15.	15-65.	65 and over.
Scarlet fever.....	36,390	124,464	1,443	129	34,072	72,883	1,076	150	40,761	141,130	2,245	444	36,761	122,053	8,094	256
Diphtheria.....	50,800	182,500	2,730	387	75,080	240,838	8,069	915	50,977	222,308	3,528	444	81,272	278,056	9,837	871
Hooping-cough.....	16,878	4,090	04		37,373	9,937	240	90	24,460	6,343	214		50,051	12,005	836	123
Enteric fever.....	2,633	41,293	32,287	8,516	11,531	60,617	64,069	17,114	2,514	40,184	81,403	8,553	13,185	68,635	54,200	10,423
Malarial fever.....	7,423	22,205	15,637	12,516	26,204	57,417	36,927	20,350	7,192	27,156	15,500	9,097	29,315	61,981	33,701	22,406
Scrofula and tabes.....	6,094	7,791	2,667	1,548	9,837	11,954	5,785	2,499	7,513	7,920	3,020	1,111	10,346	12,068	6,288	2,588
Consumption.....	14,370	41,878	307,154	75,742	17,092	30,440	218,455	82,314	15,055	77,502	338,571	60,078	18,562	67,827	208,583	85,050
Cancer.....	602	1,558	24,223	35,007	915	2,692	19,754	34,608	702	703	56,030	40,000	1,135	1,170	37,812	40,220
Paralysis and apoplexy.....	3,586	6,428	43,800	112,258	2,020	6,388	37,650	120,314	3,186	5,748	37,627	100,610	3,250	5,661	81,216	131,716
Pneumonia.....	63,040	55,123	82,554	70,129	71,874	63,656	143,080	104,784	65,030	56,208	64,921	82,861	67,584	60,510	64,008	103,712
Croup.....	34,208	57,265	282	258	64,745	32,538	355	112	84,145	40,770	350		63,311	20,851	427	333
Diseases of the nervous system.....	155,490	101,870	94,007	159,742	131,130	92,308	87,622	155,302	148,011	89,591	70,316	142,508	120,363	81,832	72,039	102,230
Diseases of the respiratory system.....	155,130	143,358	117,508	141,290	160,926	111,510	170,293	147,470	158,730	134,162	96,131	155,170	160,495	106,242	117,036	149,407
Diseases of the digestive system.....	37,007	32,723	59,680	59,007	47,907	30,446	48,421	51,433	35,763	20,531	57,973	45,540	40,045	24,704	43,055	50,550
Diseases of the bones and joints.....	1,730	13,440	3,630	2,452	2,440	5,155	3,875	2,789	1,725	8,920	3,100	1,444	2,388	3,088	2,840	1,503
Diseases of the urinary system.....	5,106	23,958	47,286	63,007	2,891	6,612	24,484	67,253	4,911	17,830	30,970	32,212	1,853	5,183	11,288	12,830
Child-birth.....											12,934			588	47,430	
Diseases of the female organs of generation.....									20		10,191	3,777	85	1,000	17,013	8,587

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TABLE 29.—SHOWING FOR 50 CITIES IN THE UNITED STATES THE NUMBER OF DEATHS FROM CERTAIN SPECIFIED CAUSES FOR EACH 10,000 OF POPULATION.

Cities.	Population.	Apoplexy.	Cholera morbus.	Consumption.	Croup.	Diphtheria.	Dysentery.	Enteric fever.	Enteritis.	Homicide.	Hooping-cough.	Measles.	Pneumonia.	Puerperal septicemia.	Scarlet fever.	Small-pox.	Suicide.
New York, N. Y.	1,206,299	4.93	0.01	35.56	4.87	5.53	3.29	1.71	2.99	0.25	1.03	1.40	21.20	1.53	4.25	0.14	0.63
Philadelphia, Pa.	847,170	3.80	0.44	31.59	3.94	3.43	1.51	4.13	2.27	0.20	1.20	1.14	11.29	0.48	2.89	0.64	0.77
Brooklyn, N. Y.	506,093	4.64	0.01	29.64	4.81	13.51	5.54	1.00	1.72	0.21	2.85	2.71	15.54	1.76	3.38	.....	0.77
Chicago, Ill.	593,185	2.68	0.03	16.75	7.23	17.80	3.12	3.27	5.18	0.07	0.89	2.78	11.42	0.89	8.24	0.27	1.17
Boston, Mass.	302,839	4.40	0.93	33.37	3.99	11.54	3.36	3.22	1.81	0.16	3.61	0.02	18.49	0.77	2.39	.....	0.79
Saint Louis, Mo.	350,518	2.42	0.45	22.93	1.45	3.99	4.73	3.45	4.53	0.59	1.56	1.45	14.26	0.71	1.22	.....	0.94
Baltimore, Md.	332,313	3.91	0.57	34.96	5.41	8.56	2.88	5.14	2.79	0.06	2.79	0.72	12.78	0.66	12.90	0.09	0.39
Cincinnati, Ohio	255,129	3.01	1.09	27.71	2.15	4.62	3.64	4.31	3.13	0.39	3.56	1.56	13.91	0.78	10.89	.....	1.45
San Francisco, Cal.	233,959	4.10	0.34	30.64	1.45	2.73	0.72	4.10	3.41	1.06	1.28	0.76	15.21	0.89	0.85	0.68	3.33
New Orleans, La.	219,096	4.53	0.67	39.42	2.12	3.10	5.57	1.96	8.51	.....	2.86	3.05	13.79	0.69	0.74	0.04	0.83
Cleveland, Ohio	160,140	2.43	0.68	17.04	4.49	12.05	3.05	3.80	2.93	.....	2.56	0.68	9.86	2.37	19.23	.....	0.93
Pittsburgh, Pa.	159,389	2.30	0.70	18.79	2.23	22.76	2.55	10.99	3.83	0.10	7.69	3.96	12.59	0.51	0.07	.....	1.02
Buffalo, N. Y.	153,134	1.74	0.38	18.16	4.04	8.50	0.25	3.48	1.99	.....	0.90	3.60	8.50	0.58	4.31	.....	0.45
Washington, D. C.	147,293	3.86	0.67	41.95	2.51	1.83	5.97	4.88	3.46	0.13	5.04	0.33	15.95	0.40	2.64	1.28	0.61
Newark, N. J.	136,508	5.42	0.58	28.42	3.58	7.17	1.17	3.51	2.71	.....	0.51	0.07	14.13	0.43	2.34	.....	1.24
Louisville, Ky.	123,758	2.82	0.72	32.48	1.77	3.87	4.04	6.86	2.34	0.08	5.41	2.50	19.71	0.80	1.93	.....	1.13
Jersey City, N. J.	120,722	3.14	0.91	27.56	3.97	8.94	3.64	1.73	2.65	.....	0.99	1.40	16.06	1.07	12.50	.....	0.24
Detroit, Mich.	116,340	2.40	0.42	18.48	5.32	0.79	0.94	2.57	2.40	0.08	0.68	4.64	9.28	0.60	3.86	.....	0.85
Milwaukee, Wis.	115,587	3.02	0.34	17.30	6.57	10.55	1.21	2.59	3.59	0.08	0.51	0.17	10.46	3.20	2.16	.....	1.90
Providence, R. I.	104,857	4.95	0.47	29.37	2.38	8.96	1.71	3.81	1.33	.....	0.95	.....	14.78	1.52	36.23	.....	0.28
Albany, N. Y.	90,758	1.43	0.11	25.89	3.85	3.41	0.55	4.51	2.86	.....	1.10	0.33	12.00	0.44	3.96	1.87	0.44
Rochester, N. Y.	89,366	1.34	0.22	23.27	3.80	8.72	1.00	1.00	1.79	.....	0.67	1.79	9.84	0.11	4.25	.....	0.67
Allegheny, Pa.	78,682	1.27	0.38	11.18	2.03	13.85	0.76	2.79	2.92	.....	1.27	0.38	7.37	0.25	2.66	.....	0.76
Indianapolis, Ind.	75,056	1.80	0.26	24.91	2.53	5.06	1.99	7.59	2.66	0.13	1.86	2.39	14.38	1.33	14.25	.....	0.93
Richmond, Va.	63,000	4.24	1.25	41.66	0.78	3.45	4.87	5.81	3.14	1.57	0.31	0.78	9.27	2.04	4.87	.....	.....
New Haven, Conn.	62,882	3.18	.....	19.24	4.61	1.90	0.31	1.90	1.27	.....	2.70	2.38	8.58	0.15	1.27	.....	0.15
Lowell, Mass.	59,475	3.36	0.67	35.30	5.38	4.03	1.67	3.02	2.69	.....	0.50	1.84	13.78	1.17	3.53	0.16	0.50
Worcester, Mass.	58,291	4.80	.....	25.04	1.54	2.91	0.68	2.91	2.23	.....	0.68	0.34	19.55	1.02	2.05	2.57	1.02
Troy, N. Y.	56,747	2.61	0.88	35.77	4.63	6.16	0.88	8.45	2.11	0.35	0.70	2.29	14.80	0.88	20.44	.....	0.35
Kansas City, Mo.	55,785	0.71	0.89	11.29	3.94	4.48	3.40	2.15	2.33	0.17	1.79	4.12	16.13	0.89	5.37	.....	0.71
Cambridge, Mass.	52,066	3.22	.....	26.77	3.60	9.11	3.41	1.32	1.89	.....	1.70	.....	14.99	0.18	1.13	.....	0.56
Syracuse, N. Y.	51,792	1.54	0.96	26.83	5.21	12.16	2.12	.....	3.47	.....	2.31	0.96	6.56	.....	0.77	.....	0.19
Columbus, Ohio	51,947	1.16	.....	19.55	1.93	4.06	.....	8.32	2.32	.....	0.58	1.93	10.00	0.38	2.12	.....	0.96
Paterson, N. J.	51,931	3.13	2.15	29.98	4.89	5.48	7.44	2.74	1.95	0.19	0.78	1.37	14.89	0.97	12.73	.....	0.58
Toledo, Ohio	50,137	0.79	0.59	9.57	4.78	4.58	1.80	3.19	1.19	0.39	0.79	1.39	7.97	0.19	4.58	.....	0.69
Charleston, S. C.	49,934	6.60	0.40	49.21	1.29	6.20	4.80	9.40	0.20	.....	5.00	0.80	13.00	1.20	.....	.....	0.20
Fall River, Mass.	48,961	1.42	1.22	27.57	3.26	2.24	3.26	4.69	3.88	.....	0.20	0.40	10.41	0.61	42.07	0.81	1.22
Minneapolis, Minn.	46,887	0.85	0.42	17.27	3.41	10.87	0.63	5.11	2.77	.....	2.77	0.63	8.53	.....	0.21	.....	0.85
Seranton, Pa.	45,850	0.43	1.30	12.21	9.37	7.63	.....	2.18	0.65	.....	.....	0.87	9.16	.....	6.10	.....	.....
Nashville, Tenn.	43,350	0.60	0.46	31.57	1.61	0.60	9.22	10.38	.....	0.23	2.53	.....	13.61	0.69	.....	.....	0.69
Reading, Pa.	43,278	3.92	.....	25.04	7.16	13.40	2.67	2.77	2.77	.....	.....	1.15	7.62	0.69	3.69	.....	.....
Wilmington, Del.	42,473	3.76	0.47	36.96	5.88	0.12	0.23	6.35	3.53	.....	1.64	1.41	12.71	0.47	6.12	.....	.....
Hartford, Conn.	42,015	6.18	.....	22.08	3.09	3.57	0.23	4.04	3.09	.....	0.95	0.71	11.66	0.47	0.71	.....	0.71
Camden, N. J.	41,659	5.52	0.48	20.40	1.92	6.00	1.68	4.80	2.16	0.24	1.20	0.48	10.32	0.48	1.92	1.44	1.68
Saint Paul, Minn.	41,473	2.17	.....	11.57	2.17	1.68	1.92	2.17	4.09	.....	1.68	1.68	5.78	0.72	1.44	.....	0.48
Lawrence, Mass.	39,151	2.55	0.76	38.56	4.34	12.00	2.04	6.38	1.53	.....	1.27	3.32	13.02	0.51	2.04	.....	0.76
Dayton, Ohio	38,078	1.29	0.77	21.97	3.36	15.25	1.29	2.06	2.84	0.51	1.55	0.25	6.72	0.77	3.61	.....	0.77
Lynn, Mass.	38,274	4.96	.....	29.00	4.18	22.46	1.56	4.18	2.09	.....	2.09	0.26	18.02	0.26	2.35	.....	0.52
Denver, Colo.	35,629	1.12	.....	17.40	2.80	14.87	0.56	.....	2.52	.....	2.52	2.52	18.80	.....	3.36	.....	.....
Oakland, Cal.	34,555	2.02	0.28	17.36	2.02	2.89	0.28	4.91	2.02	0.28	1.15	0.86	8.39	0.57	0.28	.....	2.31